

REMARKS

Favorable reconsideration of this application is respectfully requested.

The specification is amended by the present response to correct minor informalities therein. No new matter is believed to be added.

Claims 1, 2, 5-7, and 9 are pending in this application. Withdrawn claim 10 is canceled by the present response without prejudice. Claims 1, 2, 5-7, and 9 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. patent 6,531,677 to Arai et al. (herein "Arai") in view of U.S. patent 6,156,030 to Neev. That rejection is traversed by the present response as discussed next.

Initially, applicants note each of independent claims 1, 2, and 7 is amended by the present response to make minor grammatical changes therein, and to no longer recite a "switch means" but to instead recite a --switch--. Independent claim 7 is also amended by the present response to longer recite the terms --step of--. Independent claim 7 is also amended to further recite the reflection mirror in inserted and retracted into the optical path of the laser beam "with a speed being synchronized with an off timing of the laser beam in the predetermined pulse of said laser oscillator". That subject matter is similar to subject matter already recited in independent claims 1 and 2.

The claims as written are believed to positively recite features that are neither taught nor suggested by Arai nor in view of Neev, and thus that distinguish over that applied art.

The outstanding rejection cites Arai to disclose for example in Figure 1 a laser 1 and an acousto-optic deflector 6 that takes light from the laser 1 and passes the laser light onto different optical paths. The outstanding rejection appears to cite Neev to disclose a switching device such as a rapidly rotating mirror and to disclose a laser oscillator. However, applicants respectfully submit the claims as written positively recite features neither taught

nor suggested by either Arai or Neeve, and that were not actually even addressed in the Office Action.

First, independent claim 1 is directed to a laser processing apparatus in which a laser beam is output from a laser oscillator, and with reference to Figure 1 in the present specification as a non-limiting example, onto a plurality of optical path systems 30, 40. A total reflection mirror 8 as an optical path switch can be placed into and retracted from an optical path to determine on which of the optical paths 30 or 40 the output laser beam propagates. The claimed optical paths include:

- (1) at least a first optical path system that guides said laser emitted from said laser oscillator to said irradiation position control optical system ***without changing its energy distribution*** in the direction perpendicular to the optical axis of the laser beam ... (emphasis added).

Each of independent claims 2 and 7 recite the same or a similar feature. That feature is believed to clearly distinguish over the applied art.

Arai was apparently cited for outputting light on first and second optical paths, but Arai discloses each of the optical paths change an energy distribution of the laser beam. Specifically, in Figure 1 Arai discloses that a laser beam 2 can be deflected by the acousto-optic deflector 6 from a straightforward direction 2_k to a deflected direction 2_i . Arai specifically states “the deflected laser beam 2_i is homogenized with a beam homogenizer unit 30_i to have a top-hat-shaped spatial energy distribution ...”.¹ Thereby, Arai clearly discloses the deflected laser beam 2_i has its energy distribution changed. Arai further discloses the laser beam that is not deflected but that proceeds along the laser path 2_k is “homogenized with a beam homogenizer unit 30_k to have a top-hat-shaped spatial energy distribution ...”.² Thereby, Arai further discloses the not deflected laser beam 2_k also has its energy distribution changed.

¹ Arai at column 7, lines 20-23.

² Arai at column 7, lines 39-41.

Thereby, in Arai the laser beams 2_i and 2_k along two different optical paths ***both have their energy distribution changed***. In contrast to that explicit disclosure in Arai, the claims recite “a first optical path system that guides said laser beam emitted from said laser oscillator to said irradiation position control optical system ***without changing its energy distribution*** in the direction perpendicular to the optical axis of the laser beam”, as specifically recited in independent claims 1 and 2 and as similarly recited in independent claim 7. Arai does not disclose or suggest such features.

Moreover, each of independent claims 1 and 2 recite:

said total reflection mirror proceeds into and retracts from the optical path with a speed being synchronized with an off timing of the laser beam in the predetermined pulse of said laser oscillator.

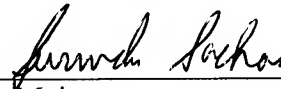
Independent claim 7 again recites a similar limitation. That feature is also believed to be neither taught nor suggested by either Arai or Neev, and has not even been addressed in the Office Action.

In view of the foregoing comments, applicants respectfully submit each of independent claims 1, 2, and 7 as currently written positively recites features neither taught nor suggested by Arai in view of Neev. Thereby, all the features in those claims are not met by the combination of teachings, and thus each of independent claims 1, 2, and 7, and the claims dependent therefrom, patentably distinguish over Arai in view of Neev.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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